REMARKS

Applicants respectfully request entry of the amendment and reconsideration of the claims. Claims 1-5 have been amended to further clarify the claims. After entry of the amendment, claims 1-9 will be pending. Applicants submit the amendment is supported throughout the specification and does not introduce new matter.

Claims 6-9 have been withdrawn by the Examiner as drawn to a non-elected invention. Applicants note that the Examiner required restriction between product and process claims. Upon indication of allowance of the product claims, Applicants note process claims that depend from or otherwise include all the limitations of the product claims must be rejoined or reinstated and fully examined for patentability (MPEP § 821.04).

Sequence Listing

The Office Action alleges the specification does not comply with the requirements for patent applications containing nucleotide sequence and/or amino acid sequence disclosures. The brief description of the figures has been amended to identify the amino acid sequences shown in the figures with an appropriate sequence identifier. A substitute sequence listing is also enclosed. Withdrawal of the objection is respectfully requested.

35 U.S.C. § 112, second paragraph

Claims 1-5 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Applicants submit the claims as amended fully comply with § 112, second paragraph.

Claims 3-5 have been amended to identify the recited amino acid sequences with a sequence identifier. Claims 3-5 have also been amended to clarify that the sequences identified in I, II, III, and IV are within the PrP and that the antibodies bind to normal or abnormal PrP. The claims are not limited to antibodies that bind to the particular sequences within PrP.

Claims 2-5 have been amended for purposes of clarity to recite a layer of PrP antibody and the thickness of the antibody layer. Support for the amendment can be found in the specification, for example, at page 10, third paragraph.

Claim 1 has been amended to clarify that the PrP antibodies are immobilized on the electrodes of the microelectrode array in a predetermined pattern. The amendment to claim 1 corrects a translation error. The meaning of the original Chinese text is "in a predetermined pattern." The specification and abstract have been amended to correct the translation error. Applicants submit the amendments do not introduce new matter.

Claim 2 has been amended to recite "antibodies against normal and abnormal PrPs with various N-terminal amino acid sequences." Support for the amendment can be found in the specification, for example, at page 1, line 15. Contrary to the Examiner's assertions, abnormal PrP and normal PrP are terms that would be readily understood by one of skill in the art. The specification discloses that abnormal PrP are resistant to proteases and Schmerr et al. (1999, J. Chromatography A, 853:207-214) discloses the use of capillary electrophoresis and fluorescent labeled peptides to detect abnormal PrP in blood (see specification at page 2, lines 2-12.

In view of the forgoing, Applicants submit the claims as amended fully comply with § 112m second paragraph. Withdrawal of the rejection is respectfully requested.

35 U.S.C. § 102

Claims 1-5 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,673,533 (Wohlstadter). Applicants respectfully traverse this rejection.

In order to anticipate a claim, the prior art reference must teach each and every element of the claim. *Verdegall Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987; MPEP § 2131. Wohlstadter does not disclose all the elements of the claims.

Wohlstadter discloses a patterned multi-array, multi-specific surface (PMAMS) for electrochemiluminescence (ECL) based tests. The electrode, cassette, cartridge, and instrument system disclosed in Wohlstadter are configured for conducting ECL assays. See Wohlstadter, for example at page column 3, lines 40-60; column 9, lines 55-67; section *5.3 Voltage Waveform* on columns 24-25; and sections *5.5 Light Detection* and *5.6 Analysis of ECL Signals* on columns 27-29.

To conduct ECL assays, Wohlstadter discloses that ECL labels must be used (see for example column 1, lines 60-67 and column 2, lines 1-19) and ECL labels must be associated with the binding/reaction domains directly, through the binding reagents, through reactions, or otherwise (see for example sections 5.15, 5.16, 5.17, 5.18 of Wohlstadter). Wohlstadter also discloses that the detection system must have a particular structure which comprises an electrode pair consisting of a working electrode and a counterelectrode, wherein the binding/reaction domains associated with the ECL labels directly or indirectly must be placed at a position between the working electrode and the counterelectrode. See for example column 2, lines 7-19. Fig. 1 and column 10, lines 11-18 illustrate and described a cassette comprising the electrode pair of a working electrode 181 and a counterelectrode 185 and binding/reaction domains located between the electrode pair.

Wohlstadter also discloses that the voltage waveform (change in electrical potential/time) impressed upon the electrodes and counter-electrodes of ECL cells must be sufficient to trigger an ECL reaction (see, for example, column 24, lines 50-52). Therefore, Wohlstadter teaches that the ECL labels and the binding/reaction domains should be placed at a position between the working electrode and the counterelectrode.

In contrast to the teachings of Wohlstadter, claim 1 is drawn to a piezoelectric biochip comprising a common electrode that is fixed on the lower side surface of the piezoelectric chip, a microelectrode array that is fixed on the upper side surface of the piezoelectric chip, and a plurality of BSE prion protein (PrP) antibodies immobilized on the electrodes of the microelectrode array. BSE PrP is detected by detecting the change of the mass of the material on the surface of the microelectrode where the antibody is immobilized (also called "detection site", see for example the specification at page 5, lines 10-14 and the paragraph bridging pages 5 and 6). The change of the mass of the material on the surface of the microelectrode in turn is determined by measuring the resonant frequency of the piezoelectric chip at the microelectrode site. When the antibody immobilized on the microelectrode reacts immunochemically with the BSE PrP present in a sample, the mass of the material on the surface of the microelectrode is increased and the resonant frequency of the piezoelectric chip at the microelectrode site is changed accordingly. Therefore, immunochemical reaction of the antibody with the BSE PrP

(and also the presence of the PrP) can be determined by measuring the resonant frequency of the piezoelectric chip at the microelectrode site.

To measure the resonant frequency of the piezoelectric chip at the microelectrode site, the common electrode and the microelectrode are fixed on the two opposite side surfaces of the piezoelectric chip. To correlate the resonant frequency of the chip and the immunochemical reaction of the antibody with the BSE PrP, the antibody (corresponding to binding/reaction domains) is immobilized on the surface of the microelectrode. The binding/reaction domains in Applicants' claims therefore are not located between the electrode pair (e.g., the common electrode and the microelectrode).

The electrodes, cassette, cartridge, and instrument system disclosed by Wohlstadter are configured for detecting ECL signals. The Wohlstadter reference discloses ECL labels on the binding/reaction domains. The binding/reaction domains associated with the ECL labels directly or indirectly must be placed at a position between the electrode pair of the working electrode and the counterelectrode. See Wohlstadter for example at column 2, lines 7-19. Fig. 1 and column 10, lines 11-18. The biochip of claim 1 does not use any ECL labels on the binding/reaction domains. Moreover, the binding/reaction domains in Applicants' claims are not located between the electrode pair as required by Wohlstadter. Wohlstadter therefore does not disclose all the elements of the claims.

In view of the forgoing, Applicants submit Wohlstadter does not anticipate the claims. Withdrawal of the rejection is respectfully requested.

Conclusion

In view of the above amendments and remarks, Applicants submit the claims are in condition for allowance and respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

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